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Educational Television Series 1968-69

Teachers' Guide

Science JUNIOR DIVISION

Relationships in Nature

Educational Television Branch
ONTARIO DEPARTMENT OF EDUCATION
1670 Bayview Avenue, Toronto 17

SCIENCE – JUNIOR DIVISION

RELATIONSHIPS IN NATURE

10 programs of 15 minutes each for students in the Junior Division.

This is Volume 1 of a two-volume series. Programs 5 to 10 will be continued in Volume 2.

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INTRODUCTION

1. Understanding science requires a wide range of practical experience. Many children need opportunities for frequent repetition of similar experiences, and although this seems especially true of the very young or less able, it is a need that can be noticed all through the child's school career and into adult life.

   This need should be reflected in a school environment which is rich in materials and in the potential for practical experience.

2. Children learn most effectively by solving practical problems related to the world around them. If they are given the opportunity, they will devise practical investigations which will find answers to these problems, and often the children themselves are able to design and make any necessary apparatus.

   Therefore, the school should be a place where individuals or small groups of children can carry out practical investigations into the problems which are raised.

3. Problems having the greatest significance to the child in terms of the real world are those which he has taken up actively, either through his own observations or by discussion with his teacher or class-fellows. The classroom needs to be so interesting that children are stimulated to ask questions.

4. As far as knowledge is concerned, the child's world is more of a complete entity than simply a series of subjects. Problems may arise in the school day (perhaps during the study of History, Geography or English) which may initiate an investigation that might be classed as scientific.

   Science is not performed in isolation from other school work. Moreover, it is desirable to think in terms of a curriculum in which the division into subjects is as small as possible.

5. Discovery sparks the desire to communicate and provides excellent opportunities for writing, painting, talking, and so on.

   At this stage, science is a way of working rather than merely the accumulation of knowledge. The idea that science is an organized body of knowledge can come to some children at a later stage, but not to all. It is only after a great amount of free-ranging investigation that the child is able to stand back, to look at what has been learned, and to put his knowledge into an organized form.

   The general aim of this series is to stimulate active classroom involvement in practical experiences by using instances from each program as starting points. Visual and oral questions will be presented in each program. These are aimed at helping the children get a start by involving them in some practical activity. It is expected that each teacher will provide the atmosphere and materials necessary for the pupils' needs. The "Classroom as a Workplace for Science", as outlined in the Interim Revision, Science (P 1, J 1) suggests an excellent situation for implementing this aim.

   Program one is primarily designed for teachers. If possible the children might take their morning break during this period, although this is by no means necessary. Teachers should find this first program of considerable value in organizing their classes for the remainder of the series.

   Programs two to ten are intended for students. In addition to presenting background information each program provides many starting points for student investigations. To assist planning for the series, a flow chart of possible follow-up activities accompanies each program guide.

   The series was filmed in two different locales in Ontario and develops around the experiences of two young boys as they explore the countryside.

PROGRAM 1

CHILDREN ARE CURIOUS

The purpose of this program is to illustrate a possible approach to the effective use of this series. Simple materials must be available if children are to be stimulated to inquiry. Pencil and paper are not sufficient. A controlled, but permissive atmosphere forms the climate, with the teacher acting as a resource person more than as a purveyor of facts.

PROGRAM CONTENT

In this program, primarily for teachers, Mr. Paul Park, Science Project Director of the Ontario Institute for Studies in Education, works with a class from Bishop Townshend Public School in London, Ontario.

We follow the development of a lesson — "Pebbles by the Shore" — from the point where the children have just viewed the program to the beginning of independent investigation.

SUGGESTED PRE-VIEWING ACTIVITIES

1. A general review of 'objectives' as set down in the Interim Revision—Science, (P1, J1) is suggested. For meaningful teacher-student investigations, careful consideration of overall goals must be emphasized.

2. It would be appropriate to consult "The Classroom as a Workplace for Science", Interim Revision, Science, Curriculum (P1, J1). Here, clearly stated, is a section dealing with materials and apparatus which are useful for the study of elementary science.

SUGGESTED POST-VIEWING ACTIVITIES

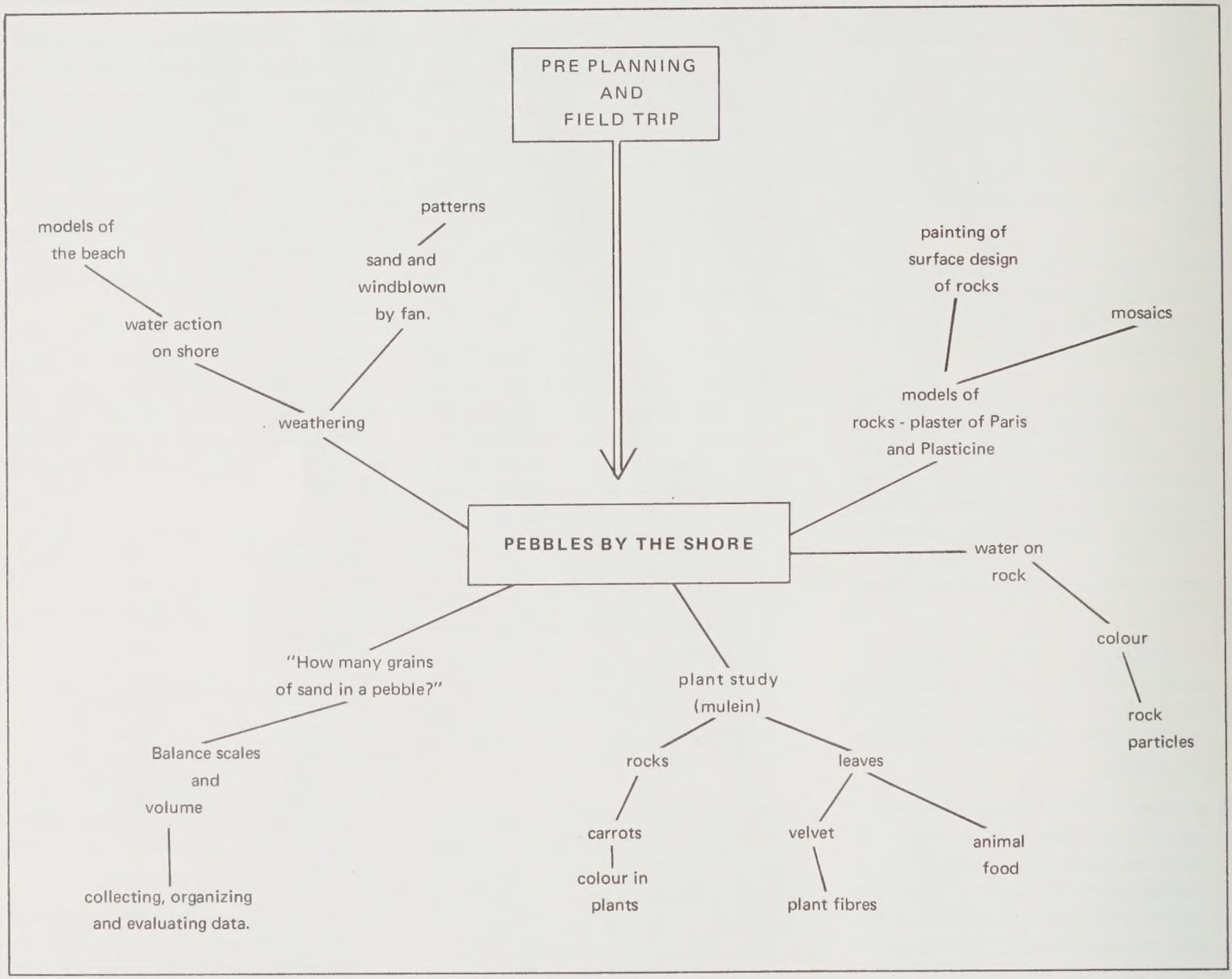
1. A 'junk box' or collection of materials is a must for all classes. This kind of material will be useful on many occasions and will consist of things like string, wood, screws, wire, squeeze bottles, elastic bands, glue, and similar materials which can be utilized to make any number of pieces of equipment.

2. Read and study the outline of Program Two. List and collect materials as suggested.

The following flow-chart presents at a glimpse some of the activities which were pursued by the pupils following the viewing of the program.

Bibliography

SCIENCE RESEARCH ASSOCIATES *Nuffield Junior Science, Teacher's Guide I and Apparatus: A Source Book of Information and Ideas.* (Collins, Glasgow) 1967.



PROGRAM 2

EAT OR BE EATEN

This program presents a vivid picture of animal relationships in the environment.

PROGRAM CONTENT

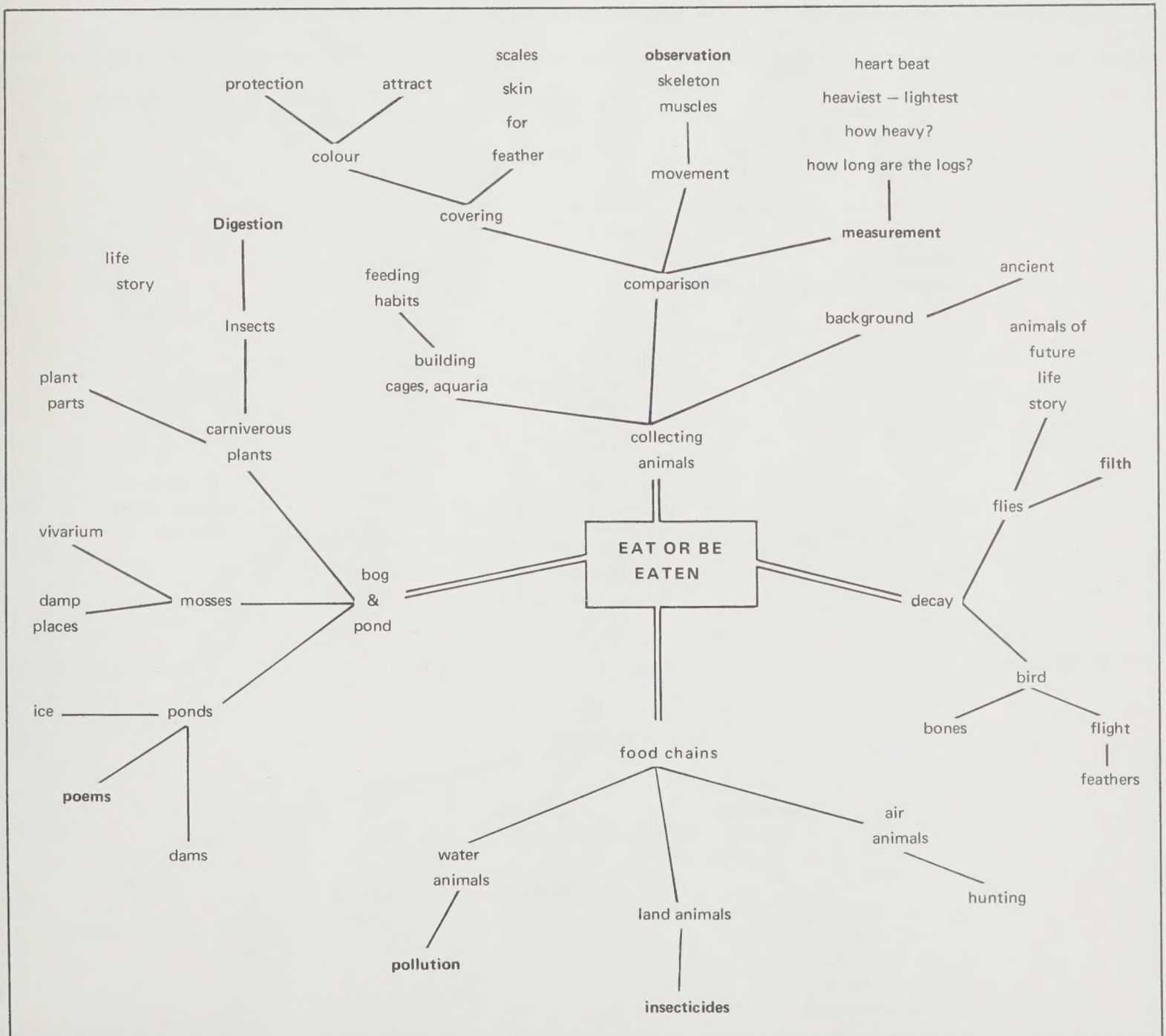
This program centres around the severity and the harshness of life in the animal kingdom. Swamp and bog areas provide the setting. Snakes, frogs, insects, and carniverous plants introduce the problem of survival, while the bog environment and animal relationships set the theme.

SUGGESTED PRE-VIEWING ACTIVITIES

1. Check the 'junk box', to be sure that a good stock of simple materials is available. (Program 1)
2. Collecting Animals
   — snakes, frogs, toads, ants, flies and other insects plus turtles, worms, snails, birds (wild or tame), fish, etc. should establish an excellent opportunity for full use of the program.
3. Materials for Containers
   — Wood, nails, bottles and boxes, etc.
4. Film strips, loops, and films.
   — have catalogues and bits available for possible use by the children.

SUGGESTED POST-VIEWING ACTIVITIES

1. The Flow chart below shows some possibilities:
2. Children check library and film catalogues.
3. Possible field excursions by small groups.
4. Picture collection and display on "Eat or be Eaten".



PROGRAM 3

PEBBLES BY THE SHORE

The program centres around the environment to be found along a lake shore in northern Ontario. Physical relationships are emphasized, together with a good base of animal and plant background content.

PROGRAM CONTENT

The action of water on plant and rock material provides the starting point for this program. The relationship of water to the weathering process is demonstrated in the breaking down of rock outcrops into pebbles. The environment also affords the opportunity for a careful study of beetles, crayfish, lichen and seagulls.

SUGGESTED PRE-VIEWING ACTIVITIES

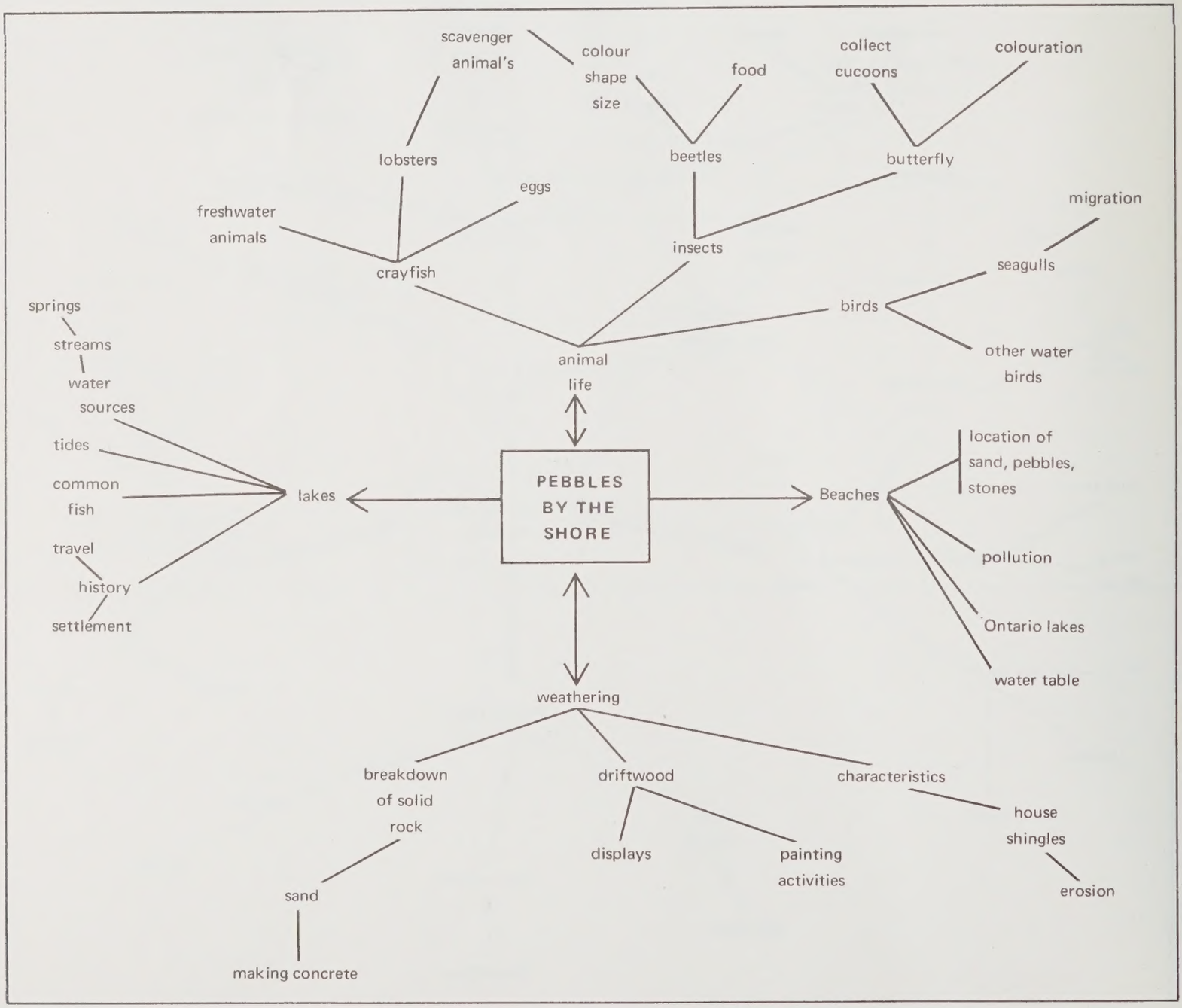
1. Collection of a large number of pebbles, stones, sand, and mullein plants would provide excellent material for discussion and practical investigation.
2. Pieces of driftwood would be of use in illustrating weathering but could also be used for displays.
3. Beetles, crayfish and insect specimens would be valuable live animal study.

SUGGESTED POST-VIEWING ACTIVITIES

1. This program served as the starting point in program one of this series. Several follow-up activities are presented in the flow chart for that program. The following illustration suggests possible alternative activities:
2. Construction of a fresh water aquarium with local stream specimens would provide a good focal point for future observations.
3. Imaginative writing, e.g. "I am the sea!, Mermaid's Tale".

Bibliography

SCIENCE RESEARCH ASSOCIATES, Nuffield, *Junior Science, Teacher's Guide 2, 1967.*
(for a good example of several possible follow-up suggestions see page 97).



PROGRAM 4

RODENTS

Rodents abound in the fencerow community. This program establishes the characteristics of these animals and their place in the fencerow environment.

PROGRAM CONTENT

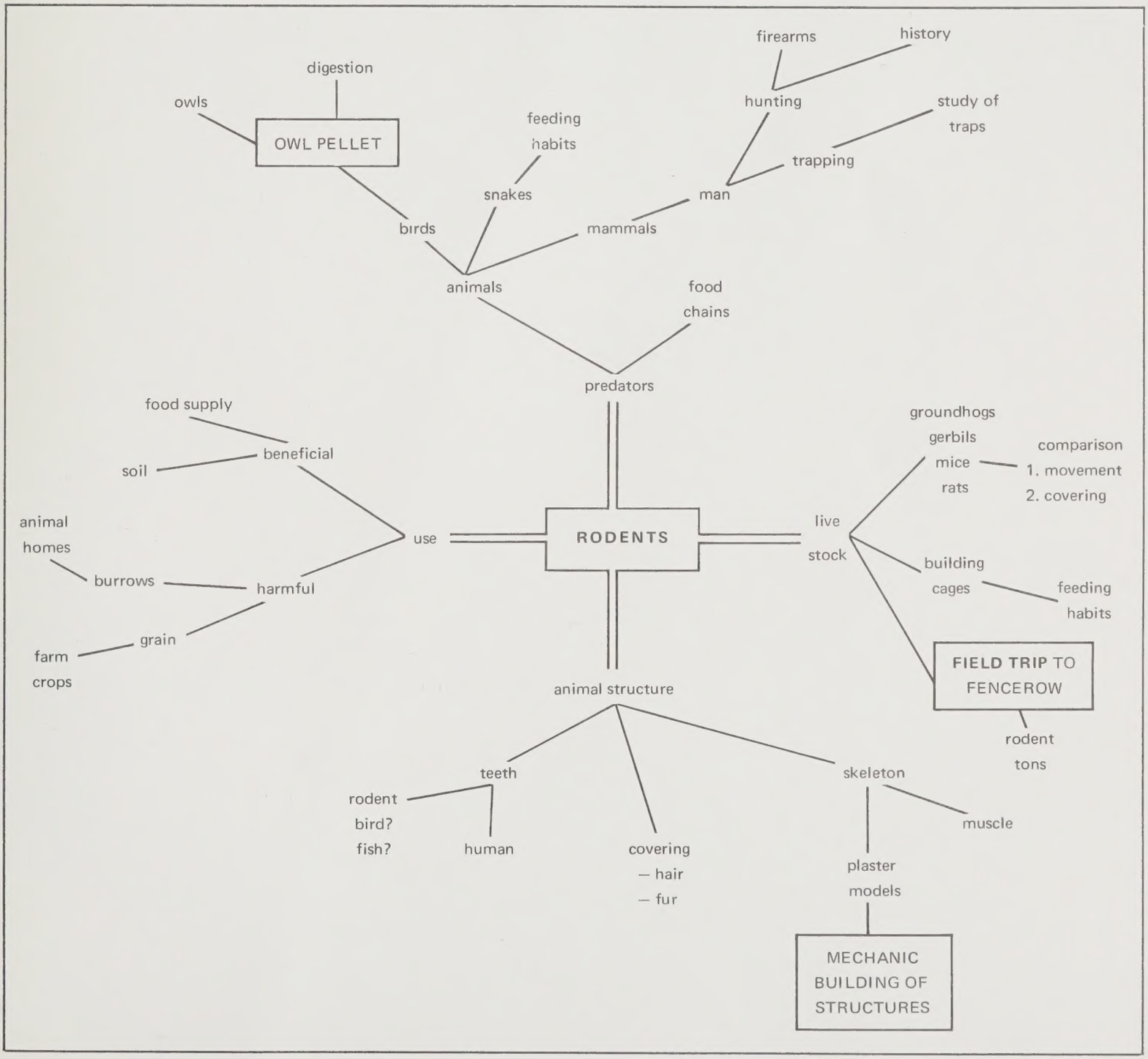
Groundhogs, field mice, muskrats and owl pellets provide the focal points in this program. The presence of animals in the environment must often be inferred from evidence. Dead animals on the fence, the discarded shotgun shell and 'animal runs', supply some of the evidence in this brief but revealing glimpse of the fencerow community. Close-up views of rodent characteristics and their habitat provide background information and additional questions for follow-up investigation.

SUGGESTED PRE-VIEWING ACTIVITIES

1. Collect live mice, rats, gerbils, for careful study by pupils.
2. Arrange an outing to a local field or piece of waste ground.
3. Check 'junk box' for the usual bits and pieces of material (program one).
4. Collect animal bones – chicken, fish, fox, etc. for follow-up study.

SUGGESTED POST-VIEWING ACTIVITIES

1. The flow chart below shows some possible lines of investigation:
2. A trip to a nearby field, building site or piece of waste ground might prove useful. What animals can the children "infer" to be present from the available evidence?



SCIENCE – Junior Division
RELATIONSHIPS IN NATURE 10 programs, 15 minutes each

Prog. No.	CBC 9:30-9:45	CBLT 9:40-9:55	CHCH 9:30-9:45	CKCO 9:30-9:45	CJOH 9:30-9:45	CBOT 9:40-9:55	CKLW 10:30-10:45
1	OCT. 21 – 10:15-10:30	OCT. 28 – 10:15-10:30	OCT. 17	OCT. 15	OCT. 15	OCT. 25 – 10:15-10:30	OCT. 22
2	OCT. 28 NOV. 4	NOV. 4	OCT. 24	OCT. 22	OCT. 22	NOV. 1	OCT. 29
3	NOV. 18 NOV. 25	NOV. 25	NOV. 14	NOV. 12	NOV. 19	NOV. 15	NOV. 19
4	DEC. 9 DEC. 16	DEC. 9	DEC. 12	DEC. 13 – 9:55-10:10	DEC. 10	DEC. 20	DEC. 20 – 10:25-10:40 JAN. 10 – 10:25-10:40
5	JAN. 8 – 10:00-10:15 JAN. 15 – 9:40-9:55	JAN. 6	JAN. 9	JAN. 10	JAN. 7	JAN. 17	JAN. 17
6	JAN. 22 – 9:40-9:55 JAN. 29 – 10:00-10:15	JAN. 27	JAN. 30	JAN. 31	JAN. 28	FEB. 7	FEB. 7
7	FEB. 5 – 9:45-10:00 FEB. 12	FEB. 17	FEB. 20 – 9:10-9:25	FEB. 21 – 9:50-10:05	FEB. 18	FEB. 28	FEB. 28 – 10:20-10:35
8	FEB. 19 – 10:05-10:20 FEB. 26	MAR. 10	MAR. 13 – 9:10-9:25	MAR. 28	MAR. 11	MAR. 14	APR. 11
9	MAR. 12 MAR. 14 – 9:50-10:05	APR. 14 – 10:15-10:30	APR. 10 – 9:10-9:25	APR. 18	APR. 1 – 9:55-10:10	APR. 18 – 9:50-10:05	APR. 25
10	MAR. 26 APR. 2	MAY 5 – 10:15-10:30	MAY 8 – 9:10-9:25	MAY 9 – 9:50-10:05	APR. 22 – 9:55-10:10	MAY 9 – 9:50-10:05	MAY 16 – 10:20-10:35

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